FINAL STATUS REPORT

ON WORK UNDER GRANT NsG-297-63

FOR THE PERIOD BETWEEN

15th February, 1965 - 15th August, 1965.

Introduction

This Final Report reviews the last phase of a programme of Lunar Photography initiated and executed at the Kwasan Observatory, Kyoto, Japan during the period 5th January 1963 to 11th June 1965.

The aims of this project have already been set down in previous reports in this series but this would seem to be an opportune occasion to reconsider them and to stress the desirability of still attempting to establish a sustained programme of Lunar Photography at an observatory located geographically approximately 120° east of the Greenwich meridian.

Such an observational "window" would then facilitate photographic coverage of the moon at times when this body is below the horizon at Pic-du-Midi and at the Lowell Observatory and the other large observatories in the Western United States.

To sustain a photographic programme it is necessary to operate at a carefully tested site, and it is possible to itemise other desirable properties:-

a) Accessibility.

b) Large aperture telescope capability.

c) Dark room facilities.

d) Good communications; emphasis on importation of film supplies, etc.

A glance at the map of S.E. Asia reveals that out of a number of possible sites only those within the Japanese Archipelago satisfy most of the above requirements. Furthermore, none are likely to be more than a few hundred miles from the nearest U.S.A.F. Base which is an item of considerable importance logistically.

After lengthy deliberation covering all aspects of the work Professor Miyamoto kindly agreed to assume responsibility for a lunar photographic programme involving senior members of his staff, notably Drs. A. Hattori and S. Nakai and junior members.

Accordingly in October 1962, at the kind invitation of Professor S. Miyamoto, Professor Z. Kopal of Manchester University together with Mr. Robert W. Carder of Aeronautical Chart and Information Center, and Mr. Thomas W. Rackham arrived in Tokyo where they were joined by Captain J. H. Alexander of the 76th Aeronautical Chart and Information Center Air Squadron at Tachikawa. This party of four proceeded to Kyoto where they were welcomed by Professor Miyamoto and by members of his staff. Thus personal links were established and an effort initiated to commence a programme of lunar photography using the 24-inch reflecting telescope of the Kwasan Observatory, together with a modified K-24

Aerial Camera that had been shipped from Manchester.

It is not necessary, within these pages, to recapitulate that which has already been written in earlier Semi-Annual Status Reports under Grant NsG-297-63. But since this is the Final Report the author would like to acknowledge the enthusiasm of the Japanese Lunar Group and the meticulous care with which individual members attended to all aspects of the telescope and darkroom work, not forgetting the preparation and dispatch of record forms that arrived regularly at Manchester and St. Louis.

The success of an enterprise such as this depends not only on the good will and enthusiasm of the personnel involved but also on the perfection of the instrumentation and the quality of the atmosphere above the observatory. Kwasan Observatory stands in an elevated position overlooking Kyoto and therefore shares the atmosphere of a smoky city that has extended its boundaries almost to the gates of the observatory. It is unfortunate that the observatory no longer occupies the advantageous position that it once had and it is to be lamented that this constitutes the sole reason for abandoning the Kyoto Photographic Programme.

Some consideration has been placed on the importance of removing the Kwasan instruments to more favourable positions away

from industrial smoke.

Sites such as Utsukushigahara, near Matsumoto in the Japanese Alps have several attractive features. Nevertheless the work of establishing a high-altitude station requires time and money and the enormity of such a task vitiates against any early resumption of lunar photography.

Results of the Kyoto Photographic Programme.

If we examine the results of the activities of the Kyoto Lunar Group it is immediately apparent that a great deal of credit is due to the young observers who made long, nightly vigils at the telescope. Their names are given here:-

Akabane

Yada

Narumi

Matsui

Further analysis reveals that of a possible number of 888 nights covered by the reports between 5th January 1963 and 11th June 1965 no less than 267 nights were worked - approximately one third. Also, during the same period, a total of 12,358 negatives were secured with the 24-inch reflector and the modified K-24 camera.. This yields an average of nearly 50 negatives per epoch.

Conclusion

By way of conclusion we would thank Professor Miyamoto for his close cooperation and for affording us observing facilities at the Kwasan Observatory. Also we acknowledge the assistance of Drs. Hattori and Nakai - the latter responsible for instrumental improvements of both telescope and camera - and the young observers, whose names are listed above, and whose activities are recorded herewith.

Last, but by no means least, we gratefully acknowledge the friendly assistance given by Captain J. H. Alexander to Professor Kopal, Mr. Carder and Mr. Rackham, during their visit in 1962. Also for the handling of the film supplies and the shipment of processed negatives to Aeronautical Chart and Information Center.